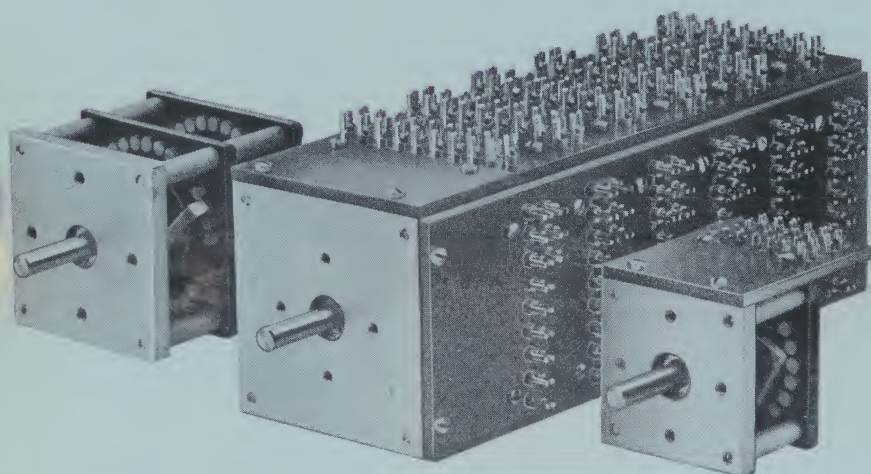




CES SERIES *Precision* INSTRUMENT SWITCHES



- ★ RUGGED CONSTRUCTION
- ★ LONG-LIFE OPERATION
- ★ LOW CIRCUIT RESISTANCE
- ★ AVAILABLE WITH PRE-WIRED TERMINAL BOARDS



Hi-Q DIVISION • AEROVOX CORPORATION

1100 Chestnut St. Burbank, Calif.

Reliability Through Technical Leadership — Manufacturing Excellence

CATALOG # 17-SK

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THE FOLLOWING ARE SOME OF THE MANY APPLICATIONS NOW USING CINEMA SWITCHES:

LABORATORY TEST EQUIPMENT

TELEVISION AND RADIO

COMPUTERS

AUTOMATIC CHECK-OUT EQUIPMENT

GEOPHYSICAL MEASURING EQUIPMENT

PRODUCTION TEST EQUIPMENT

MISSILE SUPPORT EQUIPMENT

TELEMETERING SYSTEMS

PROGRAM SELECTING

DECADE INSTRUMENTS

COMMUNICATION SYSTEMS

METER SWITCHING

RADAR SYSTEMS

HOW TO ORDER

DETAILS TO CONSIDER IN THE SELECTION OF A CES SWITCH

- CONTACT ARRANGEMENT:** Shorting (make-before-break circuit?) or non-shorting (break-before-make?) Notice that Switch Listings are grouped separately for this characteristic.
- CONTACT MATERIAL:** Standard material is nickel silver; use simplified code for coin silver.
- DECK MATERIAL:** Standard material is phenolic. Use simplified code for glass epoxy.
- POLES:** Total number required may be had on one deck or several. Select according to your requirements.
- POSITIONS:** Total number? Each switch is made to your individual requirement.
- INDEXING:** All switches listed are detented for positive indexing. Detent may be removed at factory on request at no extra charge.
- ANGULAR SPACING** of positions. Are these satisfactory to your panel engraving?
- MOUNTING:** Note that switches have three different mounting centers in ranges listed.
- DIMENSIONS:** Do they give you proper wiring clearance?
- TERMINAL BOARD:** If desired.

PAGE 2

USE SIMPLIFIED CODE SYSTEM Typical Example and Explanation

CES-1A17-1-16

Switch Style Number of Decks Deck Type Number of Poles Per Deck Number of Positions Per Pole

For Turret Terminals substitute "T" for "E" — "E" is for solder pot terminals.

(SEE CHART)

Examples of switch numbers are as follows:

CES-1A4-2-6

SCES-1A4-2-6

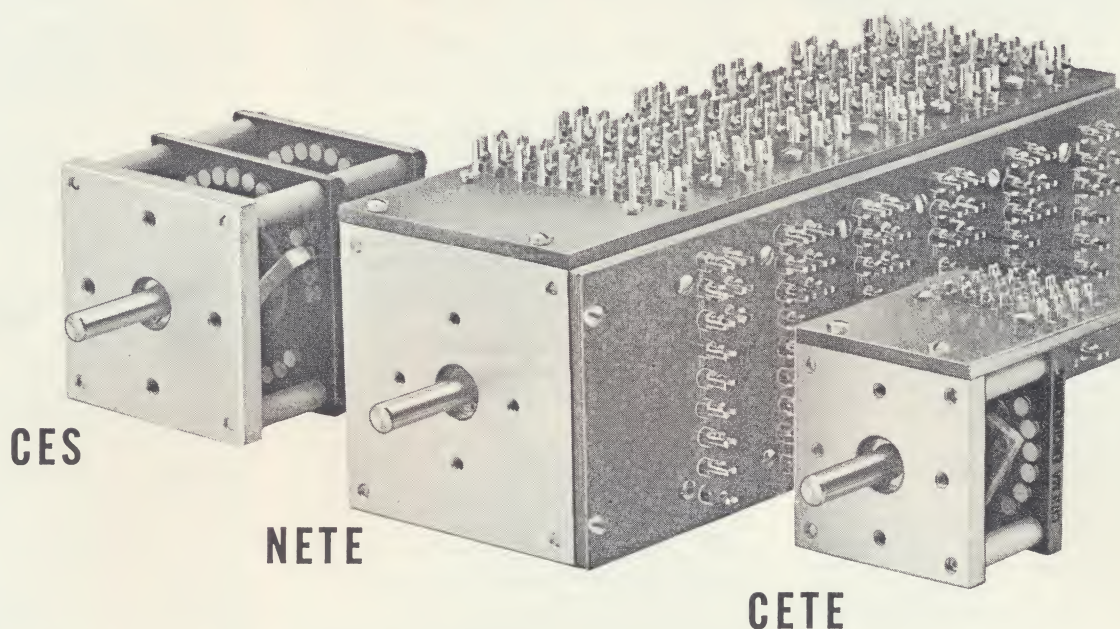
SCESE-1A4-2-6

Detent Action is supplied on switches unless otherwise specified. No Detent Action may be obtained by adding the suffix "ND" to the code. Example: CES-1A4-2-6ND.

CINEMA ENGINEERING STYLES OF SWITCHES

MODIFICATIONS AND FEATURES	STANDARD MOUNTING STYLES	WITH SPECIAL 'D' STYLE MOUNTING (SEE PAGE 6)
Standard Specification	CES	DES
With Coin Silver Contacts	SCES	SDES
With Glass-Epoxy Insulation	CESE	DESE
With Coin Silver Contacts and Glass-Epoxy Insulation	SCESE	SDESE
With Glass-Epoxy Insulation and Terminal Board	CETE NETE	DETE
With Coin Silver Contacts, Glass-Epoxy Insulation, and Terminal Boards	SCETE SNETE	SDETE

CINEMA CES INSTRUMENT SWITCHES



3 structural styles

Designed specifically for precision applications Cinema Engineering switches are the direct result of more than thirty years of engineering experience in the design, development and manufacturing of precision instrument switches. Performance-proved in critical application requirements all Cinema Engineering switches incorporate advanced engineering and highest quality materials to provide you with the finest precision instrument switch.

Cinema Engineering instrument switches feature contacts of one homogenous material to provide minimum EMF and to insure positive metal-to-metal wiping contact and continuous low electrical resistance for long-life operation. Multiple brush blades in each surface contact together with broader dimensions distributes frictional wear over a greater surface extending the service life of each Cinema instrument switch. The rugged construction of these switches provides permanent precision alignment eliminating field failures.

Extreme care is exercised in the construction of every switch. Brush blades are lapped and all edges "stoned." Contacts and commutator rings are given similar treatment. All insulating parts are custom drilled in our own plant to insure meeting of critical tolerances. Through the use of modular stock parts, Cinema can produce these switches at attractive

prices and offer rapid deliveries. All Cinema switches offer premium performance at conventional prices.

Our standard line of switches (as covered by our CES specifications) affords a complete range of types to meet practically every application. These units will meet all the requirements of critical circuitry and precision performance. For applications demanding extremely high insulation resistance, Cinema offers switches constructed with glass-epoxy insulation to meet applicable military specifications. These switches are designated type CESE.

Indicative of Cinema's advanced engineering is the Terminal Board Switch. These units permit advance planning of modular wiring harness layouts and eliminate the necessity for costly supervision and guesswork. These basic styles are Cinema CETE and NETE switches. Glass-epoxy terminal boards are used throughout their construction. CETE units accommodate one 20 AWG or two 22 AWG wires. CETE units feature smaller terminals to accept a greater number of positions. Unique with Cinema ... every terminal is clearly and permanently numbered directly on the terminal board. Numbers are machine engraved and filled. Numbered terminals eliminate errors and will enable you to expedite the assembly and maintenance of wiring harness assemblies.

STANDARD SPECIFICATIONS

CONTACTS — Solid nickel silver is supplied as standard on all contacts, commutator rings and brush blades. The use of this alloy assures lower contact resistance and the same alloy used throughout the switch construction eliminates EMF effects. Both contacts and brush blades are lapped for smoother operation. Positive metal-to-metal wiping action assures low resistance consistently throughout the performance life of the switch. For lower switch circuit resistance Coin Silver is available on brushes and contacts at a nominal extra charge (see Modifications and Special Features on page 5).

COMMUTATOR RINGS & BRUSHES — Solid nickel silver is supplied as standard, Coin Silver is available on special order at a nominal extra charge. (See Special Features on page 5).

SWITCH CIRCUIT RESISTANCE — The size of the deck affects the residual resistance of the switch. 1-3/4", 2-1/8", 2-1/2" and 3" decks have short circuit paths and consequently offer a low residual resistance of approximately 15 milliohms per circuit. A residual resistance of 25 milliohms per circuit is standard on deck sizes 3-5/8" and 5". Where extremely low residual resistance is required (2 milliohms per circuit) Coin Silver should be specified for all contact, commutator rings and brushes.

CURRENT CAPACITY — The current capacity is the amount of continuous current carried by an individual switch circuit. Current capacity however, is not the current "breaking" capacity. The current capacity of Cinema switches is 10 amperes-non-switching. These switches are recommended for operation in circuits with a minimum of inductive currents. Inductive loads will result in momentary "back-EMF" and produce undesirable arcing.

FREQUENCY RANGE — Switches are designed for operation up to 100KC and for all DC circuits. They are not suitable for RF applications.

VOLTAGE CAPACITY — The peak voltage applied before breakdown of insulation will vary with each switch type. Therefore individual ratings apply. The rated voltage is from 1000 to 2000 volts between circuits and frame or shaft and between contacts.

INSULATION MATERIALS — Fine linen base phenolic meeting all the requirements of MIL-P-15035, Type FBE, is supplied as standard for deck material. This material will meet the widest number of application requirements and provide superior performance and long operating life. A glass-epoxy insulation material meeting the requirements of MIL-P-18177-GEE is available for those applications demanding extremely high insulation resistance. Glass epoxy offers impact strength 2 to 5 times better than conventional materials. Moisture resistance characteristics are superior by a factor of 6 to 10 times and dielectric character-

istics by a factor of 3 times. Material is neither fragile or brittle and offers excellent mechanical protection.

METALLIC PARTS AND SURFACES — All metallic parts used in the construction of these switches will meet or exceed one or more of the following Federal or Military Specifications: QQ-A-355; QQ-B-626; QQ-B-746; QQ-C-585; QQ-S-636; and/or MIL-S-13282.

Protective coatings and surfaces treatments meeting 50 hours salt spray test specifications are used throughout. Federal and Military Specifications QQ-P-416 and MIL-A-8625 are applicable.

CONTACT ARRANGEMENTS — Both shorting and non-shorting arrangements are available. Shorting types provide a make-before-break circuit while non-shorting types provide a break-before-make circuit. This is accomplished mechanically within the switch by doubling the spacing between active contacts. "Dummy" contacts are inserted between the active contacts and provide "land" for the brushes to wipe over enroute to the active contacts.

OPERATIONAL TORQUE — These switches have been designed for manual operation. The choice of detent action and resultant torque is a product of the individual design of the switch. The detent action required to overcome the friction of the wiping action is adjusted at the factory for optimum operation.

DETENT ACTION — Positive and accurate indexing is afforded by the combination of a precision steel ball, heavy steel rotor and phosphor bronze spring tension plate. Since each switch is custom assembled, the mechanism is precisely and permanently aligned for the specific positions and rotation. Adjustments can not work loose or be tampered with.

TERMINALS — Contact stems are used as terminals. The connecting lead to the switch is inserted in the hollow-bored stem. 3/32" dia. contacts will accommodate one 20 AWG wire, while all other sizes will accept up to 18 AWG wire. Additional space on the stem for attaching wires without hazardous voltage breakdowns is available.

MULTIPLE DECK SWITCHES — All standard CINEMA switches are available in 1 to 8 decks. More decks may be made on Special Request.

DRIVE SHAFT — The shaft extending for knob attachment is made of stainless steel rod. The same shaft extends as a solid member through the entire length of the switch. No couplings or adaptors are used that would introduce errors in alignment. Standard front extension of the shaft is 15/16 inch. Special shaft extensions, both front and rear, are available upon special request.

TERMINAL BOARD SWITCHES — Available as Cinema Types CETE and

NETE these units feature glass-epoxy terminal boards. The CETE type uses smaller terminals accepting a greater number of positions. Both types have individually numbered terminals. Refer to "Terminal Board Switches" in "Modifications and Special Features" section on page 5.

MOUNTING — Switches in deck sizes 1-3/4" square to 3" square have 4 holes on 1-1/4" mounting centers. These holes are tapped for 6-32 screws 3/16" deep. Deck sizes above 3" square have the same arrangement on 2-1/2" mounting centers. Only 2 screws are usually used for mounting. The four holes in Cinema Switches permits added flexibility, in that, the entire switch may be rotated for it's most convenient positioning. A 5/16" clearance hole should be provided for the switch shaft.

PRICES — Switches listed in this catalog are custom assembled from stock modular parts. Through the use of a modular stock parts program we can provide a premium performance switch, custom assembled at a price comparable to that of mass-produced types and in addition meet your most urgent delivery requirements. Only Cinema offers you a complete selection from a wide variety of standard types. You are invited to consult with our engineering and design departments for switches to meet your particular requirements. We welcome the opportunity to quote on all of your switch requirements.

DIALS: Special custom made dials can be easily ordered, using our novel type numbering system. Three types are available; one for each mounting dimension. All are 2 3/4" in dia. with 7/16" clearance hole in the center. They are aluminum alloy, black anodized with bright aluminum machine engraved numbers.

Dials are ordered by specifying the type number, degrees between positions, and number series to be engraved. When series is consecutive, starting with No. 1, only the last number is required. If numbers are consecutive but not starting with "one", they may be indicated as 2-11, 14-18, etc. If numbers are neither of the above, then the extreme counter clockwise character should be first with a comma between each position called out. Examples: Dial 7400-15-10, a 7400 dial with 15° spacing numbered 1 thru 10. Dial 7400-15-2-11, a 7400 dial with 15° spacing numbered 2 thru 11. Dial 7400-15-2A, 3C, X1, X6, 21, a 7400 dial with 15° spacing with positions numbered 2A, 3C, X1, XY, 21.

KNOBS: For the convenience of our customers we offer a single standard black plastic knob with a white recessed line in the skirt as position indicator. The knob portion has a 1-5/8" diameter. The skirt is 2-1/16" in dia. and is removable. Provided with 2 set screws for mounting on 1/4" switch shaft. Net weight 1 1/2 ounces. Shipping weight 4 ounces.

Dial	Mounting Centers	Suggested Mounting Screws	Dial Thickness
7400-()-()	1-1/4"	Flat Head 6-32	.072
7401-()-()	1-3/8"	Binding Head 6-32 or 8-32	.072
7402-()-()	1-1/2"	Binding Head 6-32 or 8-32	.072

Dials: Net Wt. 1 Oz. Shipping Wt. 5 Oz.

MODIFICATIONS AND SPECIAL FEATURES

SPECIAL MOUNTINGS:

"D" style switches (use letter "D" in type number code) provide replacements for switches manufactured by others.

"D" style switches have the following mountings: 1-3/8" centers for 6-32 screws on decks of 1-3/4"; and 1-1/2" centers for 8-32 screws on 2-1/8" thru 3" decks. Mounting centers are referred to as dimension "B" in Mechanical Dimensions on page 6.

Example: Cinema CES type becomes type DES. See page 2 for Cinema styles of switches.

SPECIAL INSULATION:

Glass-Epoxy material (use letter "E" in style number code) to meet Specification MIL-P-18177 type GEE is available. Cinema pioneered the use of this premium performing material. Compared with the standard phenolic materials it is 2 to 5 times better in impact strength, 6 to 10 times better in moisture resistance characteristics and 3 times better in dielectric characteristics. It is neither brittle nor fragile. Switches made with Glass-Epoxy have an operative temperature range of minus 55° C to plus 85° C.

SPECIAL CONTACT MATERIAL:

Coin Silver material (use letter "S" in style number code) provides the lowest contact resistance and circuit resistivity. The total resistance per circuit is approximately 2 milliohms. Switches made to code "S" specification have Coin Silver brushes, contacts, commutator rings. This material is highly recommended where extremely low resistance is important to the customer's circuit

design. Costs of Coin Silver are not prohibitive. Cinema modular coin silver parts provide a most economical unit with highly reliable performance.

TERMINAL BOARD SWITCHES:

Completely wired switches with terminal boards are furnished in two general styles; CETE and NETE. These switches are available with Standard Nickel Silver contacts and Special Coin Silver contacts. All terminal designations are individually machine engraved and are permanent. Removing a single wire does not involve a complicated decision to replace. With minimum advance planning no complicated instructions are required.

The difference between the two styles of terminal board switches is in the terminal type. The CETE has the smallest terminal, hence is available with more positions per deck than the NETE. The CETE terminal accommodates 1-20 gauge or 2-22 gauge wires. The NETE switch terminal will accommodate 2-20 gauge or 3-22 gauge wires.

See the Terminal Board Reference Chart to determine if one or two boards are necessary. If the number of positions required exceeds the maximum positions available for one board, the switch will then require two boards. By using two terminal boards per switch each style provides double the number of available terminals.

Terminals are laid out as if both terminal boards were joined on the same plane. Note that the double terminal board switches have their "A" dimension

increased 7/16" on two sides (see page 6 for Mechanical Dimensions).

SPECIAL SHAFTS:

Special front and rear extension drive shaft lengths are available on special order.

Flatted shafts for positive knob location are also available on special order. Reference position of flat as it relates to mounting holes of the switch, with switch in extreme counter-clockwise position, which will be Position No. 1.

MULTIPLE DECK SWITCHES:

Standard spacing between decks is shown on Mechanical Dimensions, page 6. However, special spacing to meet your requirements may be had on Special Order.

Decks of shorting and non-shorting arrangements may be intermixed on special order. Care should be taken to select units of the same detent indexing angle and rotation.

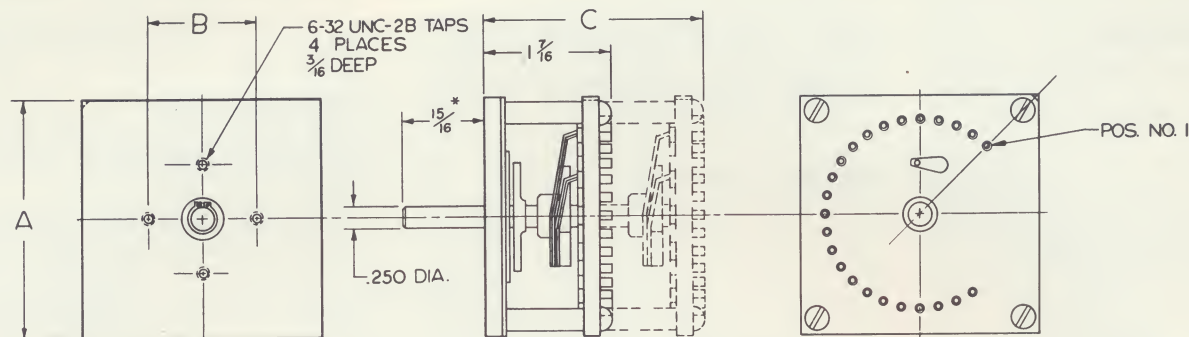
PRE-WIRED "SHORTING" TYPE SWITCHES:

Should a wider indexing angle be desired in a "Shorting" type switch, select the required indexing angle of a "Non-Shorting" switch and CINEMA will pre-wire it to produce the "Shorting" requirements at a nominal charge. Simply replace the first "E" in the switch style code with the letter "W".

Example: Cinema type CES 2A2-1-12 becomes CWS 2A2-1-12.

TERMINAL BOARD REFERENCE CHART

CETE STYLE Maximum positions per Pole per Deck – One Board					NETE STYLE Maximum positions per Pole per Deck – One Board				
DECK SIZE	ONE POLE	TWO POLE	THREE POLE	FOUR POLE	DECK SIZE	ONE POLE	TWO POLE	THREE POLE	FOUR POLE
1-3/4	24	12	–	–	1-3/4	17	8	–	–
2-1/8	32	16	–	–	2-1/8	20	9	–	–
2-1/2	40	20	10	10	2-1/2	26	12	8	5
3	48	24	12	12	3	32	15	10	7
3-5/8	64	32	16	16	3-5/8	38	18	12	8
4	72	36	18	18	4	44	21	14	10
5	92	46	23	23	5	56	27	18	13
6	112	56	28	28	6	68	32	22	16
7	132	66	33	33	7	80	39	26	19
8	152	76	38	38	8	92	45	30	22



Dimension "A" is the deck size shown as a major detail on specification page of this catalogue. Additional decks extend length 1-1/16". Standard mounting dimensions: (Dimension B) Deck sizes 1-3/4" to 3" have 1-1/4" mounting centers. Drill only clearance hole for shaft and 2 mounting holes thru panel. Two extra holes are provided to allow rotation of switch mounting for best possible position for wiring.

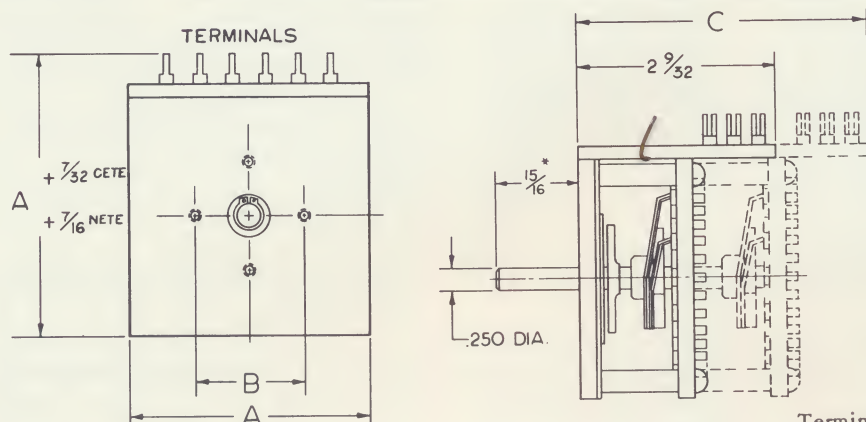
SPECIAL MOUNTING: (Dimension B) "D" style mounting provides 1-3/8" centers for 6/32 screws on 1-3/4" decks and 1-1/2" centers for 8-32 screws on 2-1/8" thru 3" decks. Available on special order. See page 5.

* The shaft length for switch size 3-5/8" and over will be 1".

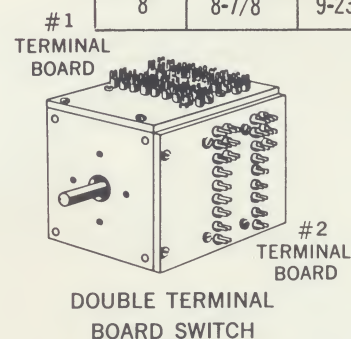
STANDARD LENGTHS 'C' DIMENSIONS		
NUMBER OF DECKS	NO TERMINAL BOARD	WITH TERMINAL BOARD
2	2-1/2	3-11/32
3	3-9/16	4-13/32
4	4-5/8	5-15/32
5	5-11/16	6-17/32
6	6-3/4	7-19/32
7	7-13/16	8-21/32
8	8-7/8	9-23/32

CETE NETE STYLES

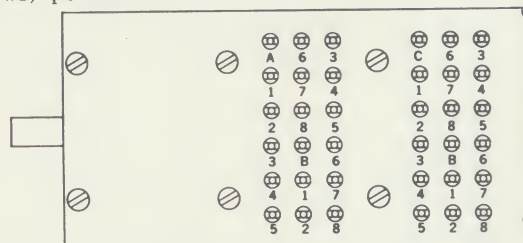
MECHANICAL DIMENSIONS



These switches are identical to the CES type for increases in dimensions to allow for terminal boards. Each additional deck extends length multiples of 1-1/16". Switches with 2 terminal boards have the increased deck dimension on adjacent sides. Terminals are laid out in a columnar manner. Poles (rotors or brushes) are alphabetically marked. The first pole is always "A". The letters I, O, and Q are omitted. The 24th pole will start double alphabet letters AA, AB, etc. Positions are numbered, starting with No. 1 in the switches' extreme counter clockwise position of rotation. Example illustrated to the right is 2 pole, 8 position, multi-deck NETE switch. The information detailed above should permit engineers to lay out wiring harness immediately, terminal numbers need only to be referenced.



Terminals on double terminal boards are laid out as if both were joined on the same plane. The first vertical row of numbering extended down the first row on the second terminal board, etc. Limitations do exist as to the maximum number of terminals that can be provided. Charts on page 6 cover this detail. CETE switches have up to 4 vertical rows of terminals (NETE - 3 rows) per deck.

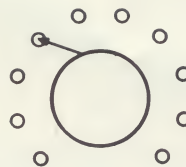


Designs shown in this catalog are subject to change without notice.

SINGLE POLE PER DECK

SHORTING TYPE

(One to Eight Decks)



LESS THAN 360° ROTATION WITH STOPS							360° ROTATION	
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT DIAMETER	DECK TYPE	POSITIONS	DECK TYPE
16	1-3/4"	1 1/4"	22.5	337.5	1/4	A17	16	CA17
20			18	342	3/16	A9	20	CA9
21			17.14	342.85	3/16	A25	21	CA25
22			16.36	343.64	3/16	A21	22	CA21
24			15	345	5/32	A1	24	CA1
31	1-3/4"	1 1/4"	11.25	337.5	1/8	A31	32	CA31
24	2-1/8"	1 1/4"	15	345	3/16	B3	24	CB3
25			13.84	332.31	5/32	B29	26	CB29
29			12	336	1/8	B21	30	CB21
31			11.25	337.5	5/32	B15	32	CB15
35			10	340	1/8	B1	36	CB1
45	2-1/8"	1 1/4"	7.5	330	3/32	B25	48	CB25
35	2-1/2"	1 1/4"	10	340	5/32	C1	36	CC1
39			9	342	1/8	C13	40	CC13
31	3"	1 1/4"	11.25	337.5	3/16	N1	32	CN1
35			10	340	3/16	N5	36	CN5
39			9	342	5/32	N3	40	CN3
44			8	344	5/32	N9	45	CN9
47			7.5	345	1/8	N7	48	CN7
44	3-5/8"	2 1/2"	8	344	3/16	D9	45	CD9
47			7.5	345	3/16	D1	48	CD1
49			7.2	345.6	5/32	D19	50	CD19
58			6	342	1/8	D5	60	CD5
49	4"	2 1/2"	7.2	345.6	3/16	E9	50	CE9
58			6	342	5/32	E5	60	CE5
70			5	345	1/8	E1	72	CE1
58	5"	2 1/2"	6	342	3/16	F5	60	CF5
70			5	345	5/32	F1	72	CF1
77			4.5	342	5/32	F7*	80	CF7*
100	6"	2 1/2"	3.5	346.5	1/8	G1*	NA	
116	7"	2 1/2"	3	345	1/8	H1*	120	CH1*
139	8"	2 1/2"	2.5	345	1/8	K1*	144	CK1*

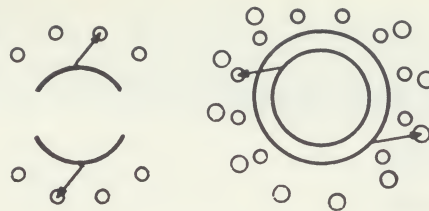
*Detent Action Not Available.

**Less Positions are Available in Any Size.

TWO POLES PER DECK

SHORTING TYPE

(One to Eight Decks)

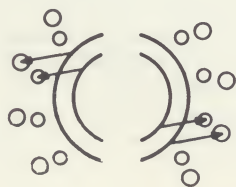


LESS THAN 360° ROTATION WITH STOPS								360° ROTATION	
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT 1ST POLE	DIAMETER 2ND POLE	DECK TYPE	POSITIONS	DECK TYPE
7	1-3/4"	1 1/4"	22.5	135	1/4	1/4	A23	NOT AVAILABLE	NOT AVAILABLE
9			18	144	3/16	3/16	A11		
11			16.36	163.64	3/16	3/16	A27		
11			15	150	5/32	5/32	A3		
15			11.25	157.5	1/8	1/8	A29		
11	2-1/8"	1 1/4"	15	150	3/16	3/16	B7		
14			12	156	1/8	1/8	B35		
15			11.25	157.5	5/32	5/32	B19		
17			10	160	1/8	1/8	B5		
23			7.5	165	3/32	3/32	B31		
15	2-1/2"	1 1/4"	11.25	157.5	3/16	3/16	C37		
17			10	160	5/32	5/32	C39		
17	3"	1 1/4"	10	160	3/16	3/16	N31		
19			9	162	3/16	3/16	N33		
22			7.5	157.5	1/8	1/8	N35		
23	2-1/2"	1 1/4"	15	330	3/16	1/4	C3	24	CC3
31			11.25	337.5	5/32	3/16	C23	32	CC23
35			10	340	1/8	5/32	C41	36	CC41
35	3"	1 1/4"	10	340	5/32	3/16	N11	36	CN11
39			9	342	1/8	5/32	N13	40	CN13
44			8	344	1/8	5/32	N17	45	CN17
44	3-5/8"	2 1/2"	8	344	5/32	3/16	D31	45	CD31
47			7.5	345	5/32	3/16	D33	48	CD33
48	4"	2 1/2"	7.2	338.4	5/32	3/16	E19	50	CE19
58			6	342	1/8	5/32	E15	60	CE15
58	5"	2 1/2"	6	342	5/32	3/16	F15	60	CF15
70			5	345	1/8	5/32	F11	72	CF11
77	6"	2 1/2"	4.5	342	1/8	5/32	G5*	80	CG5*

3 TO 4 POLES PER DECK

SHORTING TYPE

(One to Eight Decks)



LESS THAN 180° ROTATION WITH STOPS							
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT 1ST-2ND POLE	DIAMETER 3RD-4TH POLE	DECK TYPE
11	2 1/2"	1 1/4"	15	150	3/16	1/4	C7
15			11.25	157.5	5/32	3/16	C27
16			10	150	1/8	5/32	C5
16	3"	1 1/4"	10	150	5/32	3/16	N25
19			9	162	1/8	3/16	N23
21			8	100	1/8	5/32	N29
21	3-5/8"	2 1/2"	8	100	5/32	3/16	D29
23			7.5	165	5/32	3/16	D3
23	4"	2 1/2"	7.2	158.4	5/32	3/16	E25
28			6	162	1/8	5/32	E7
28	5"	2 1/2"	6	162	5/32	3/16	F25
34			5	165	1/8	5/32	F3
36	6"	2 1/2"	4.5	157.5	1/8	5/32	G7*

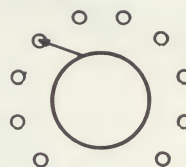
*Detent Action Not Available.

**Less Positions Available in Any Size

SINGLE POLE PER DECK

NON SHORTING TYPE

(One to Eight Decks)



LESS THAN 360° ROTATION WITH STOPS							360° ROTATION	
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT DIAMETER	DECK TYPE	POSITIONS	DECK TYPE
10	1-3/4"	1 1/4"	36	324	3/16	A6	10	CA6
11			32.72	327.28	3/16	A10	11	CA10
12			30	330	5/32	A2	12	CA2
16			22.5	337.5	1/8	A12	16	CA12
12	2-1/8"	1 1/4"	30	330	3/16	B4	12	CB4
13			27.69	332.31	5/32	B10	13	CB10
15			24	336	1/8	B12	15	CB12
16			22.5	337.5	5/32	B16	16	CB16
18			20	340	1/8	B2	18	CB2
23			15	330	3/32	B14	24	CB14
16	2-1/2"	1 1/4"	22.5	337.5	3/16	C10	16	CC10
18			20	340	5/32	C2	18	CC2
20			18	342	5/32	C12	20	CC12
18	3"	1 1/4"	20	340	3/16	N4	18	CN4
22			16	336	5/32	N8	--	---
24			15	345	1/8	N10	24	CN10
20	3-5/8"	2 1/2"	18	342	3/16	D20	20	CD20
22			16	336	3/16	D10	--	---
24			15	345	3/16	D2	24	CD2
24			14.4	331.2	5/32	D14	25	CD14
29			12	336	1/8	D6	30	CD6
24	4"	2 1/2"	14.4	331.2	3/16	E8	25	CE8
29			12	336	5/32	E6	30	CE6
35			10	340	1/8	E2	36	CE2
29	5"	2 1/2"	12	336	3/16	F6	30	CF6
35			10	340	5/32	F2	36	CF2
39			9	342	1/8	F8	40	CF8
50	6"	2 1/2"	7	343	1/8	G2*	- Not Available -	
58	7"	2 1/2"	6	342	1/8	H2	60	CH2
70	8"	2 1/2"	5	345	1/8	K2	72	CK2

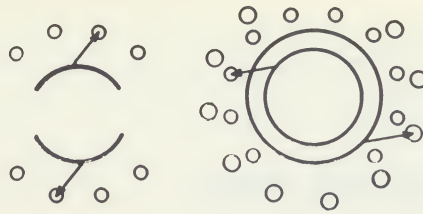
* Detent Action Not Available.

** Less Positions Available in Any Size.

TWO POLES PER DECK

NON SHORTING TYPE

(One to Eight Decks)

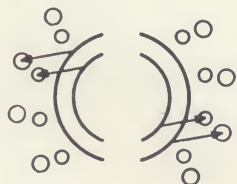


LESS THAN 360° ROTATION WITH STOPS								360° ROTATION	
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT		DECK TYPE	POSITIONS	DECK TYPE
					1ST POLE	2ND POLE			
5	1-3/4"	1 1/4"	36	144	3/16	3/16	A8	NOT AVAILABLE	NOT AVAILABLE
6			30	150	5/32	5/32	A4		
8			22.5	157.5	1/8	1/8	A14		
6	2-1/8"	1 1/4"	30	150	3/16	3/16	B8		
7			24	144	1/8	1/8	B22		
8			22.5	157.5	5/32	5/32	B18		
9			20	160	1/8	1/8	B6		
11			15	150	3/32	3/32	B20		
8	2-1/2"	1 1/4"	22.5	157.5	3/16	3/16	C22		
9			20	160	5/32	5/32	C20		
9	3"	1 1/4"	20	160	3/16	3/16	N20		
10			18	162	3/16	3/16	N18		
11			16	160	5/32	5/32	N16		
10	2-1/2"	1 1/4"	36	324	1/4	5/32	C26	10	CC26
12			30	330	3/16	1/4	C40	12	CC40
16			22.5	337.5	5/32	3/16	C32	16	CC32
18			20	340	1/8	5/32	C28	18	CC28
18	3"	1 1/4"	20	340	5/32	3/16	N28	18	CN28
20			18	342	1/8	5/32	N30	20	CN30
22			16	336	1/8	5/32	N22	NA	
22	3-5/8"	2 1/2"	16	336	5/32	3/16	D22	NA	
24			15	345	5/32	3/16	D24	24	CD24
29	4"	2 1/2"	12	336	1/8	5/32	E12	30	CE12
29	5"	2 1/2"	12	336	5/32	3/16	F12	30	CF12
35			10	340	1/8	5/32	F10	36	CF10
38	6"	2 1/2"	9	333	1/8	5/32	G8	40	CG8

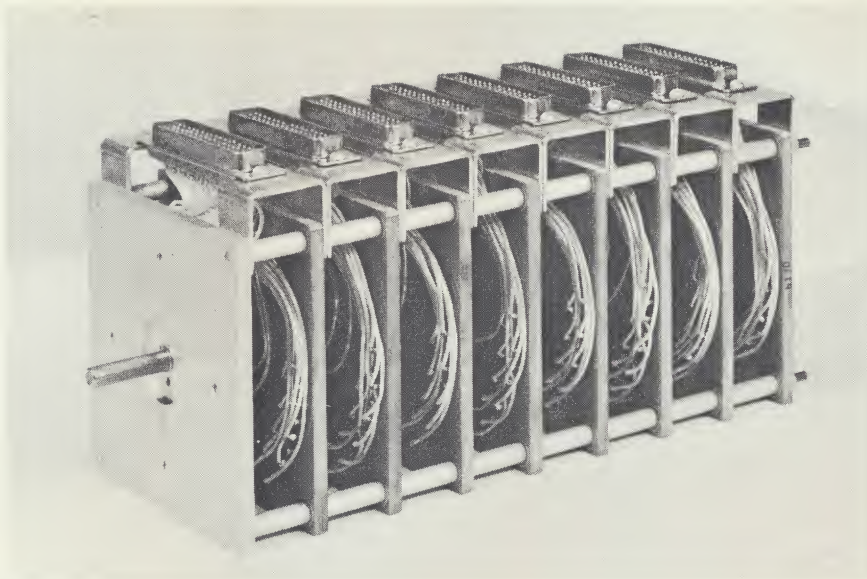
3 TO 4 POLES PER DECK

NON SHORTING TYPE

(One to Eight Decks)

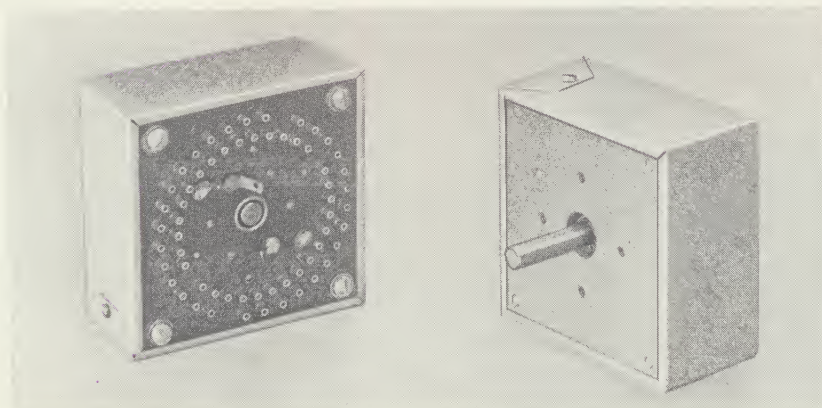


LESS THAN 180° ROTATION WITH STOPS							
** MAX. POS.	DIM. A	DIM. B	DEGREES BETWEEN POSITIONS	MAXIMUM DEGREES ROTATION	CONTACT		DECK TYPE
					1ST - 2ND POLE	DIAMETER 3RD - 4TH POLE	
5	2-1/2"	1 1/4"	36	144	1/4	5/32	C38
6			30	150	3/16	1/4	C8
8			22.5	157.5	5/32	3/16	C36
9			20	160	1/8	5/32	C6
9	3"	1 1/4"	20	160	5/32	3/16	N34
10			18	162	1/8	5/32	N36
11			16	160	1/8	5/32	N38
11	3-5/8"	2 1/2"	16	160	5/32	3/16	D38
12			15	165	5/32	3/16	D4
14	4"	2 1/2"	12	156	1/8	5/32	E20
14	5"	2 1/2"	12	156	5/32	3/16	F16
17			10	160	1/8	5/32	F4
19	6"	2 1/2"	9	162	1/8	5/32	G6



Many Special Switches can be made to meet the Customers individual requirements such as this switch shown above with QUICK-DISCONNECT connectors "pre-wired" by CINEMA.

CINEMA'S highly trained personnel can pre-wire "Components" to your special switch requirements in our factory. A complete package unit assures better control for high quality at lower cost.



Dust cover made to enclose moving parts, (note contact terminals extend to rear) Cinema Switch construction includes all rotating parts forward of rear deck—thus prevents tangling of circuit wires. (Illustration depicts a single deck switch).



CINEMA PLANT
Burbank, California



AEROVOX CANADA, LTD.
Hamilton, Ontario



LUTHER MFG. CO., INC.
Olean, N.Y.



HI-Q DIVISION
Franklinville, N.Y.



AEROVOX CORPORATION
General Offices — Plant 1
New Bedford, Mass.



AEROVOX CORPORATION
Plant 2
New Bedford, Mass.



HI-Q DIVISION
Myrtle Beach, S.C.



HI-Q DIVISION
Olean, N.Y.

AEROVOX CORPORATION

Olean, N. Y. Myrtle Beach, S. C. Burbank, Calif.